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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,838

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EXAMINER

GUIDOTTI, LAURA COLE

ART UNIT

PAPER NUMBER

1744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/667,838	Applicant(s) PARK ET AL.	
	Examiner Laura C. Guidotti	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 7,8 and 11-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Attachment A</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harsh, US 6,363,573 in view of Lagerstrom et al., US 3,683,448.

Harsh teaches vacuum cleaner comprising a suction brush body (22), a height adjustment mechanism that has a height adjusting knob (144) disposed at a seating portion formed in the suction brush body (28 and/or 146; Column 4 Lines 60-65), having a cam curve portion (92) formed at a part of an end of the height adjusting knob inserted into the suction brush body (80; Figures 9-10), the cam curve portion having a height difference between a starting point and an end point thereof (starting and ending points

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are 114 and 120, Figures 9-10), and a plurality of recessed grooves formed between the starting point and the end point (116, 118; Figures 9-10; Column 4 Lines 15-33), a horizontal height adjusting shaft (62) having a rod member (72; Figures 7-10) attached to the height adjusting shaft and which extends upwardly and away from the height adjusting shaft, substantially orthogonal to the height adjusting shaft at its attachment point to the height adjusting shaft (as shown in Figures 7-10), to contact the cam curve portion of the height adjusting knob, the rod member causing the height adjusting shaft to be lifted up and down by movement of the knob (Column 5 Lines 3-19), and a brush front wheel rotatably coupled to the height adjusting shaft (78). Regarding claim 2, the suction brush body (22) comprises a brush frame (26) which has a suction portion for sucking dust at a lower surface thereof (38; Column 3 Lines 1-6) and in which the height adjusting shaft is disposed (see Figures 2 and 7-10), and a brush cover (28).

Regarding claim 3, the seating portion comprises a seating member disposed at the brush frame (140, 142) and a seating hole formed through the brush cover (147).

Regarding claim 4, the seating member is partially cut away to form a space portion (it is partially cut away, see Figures 7-10). Harsh does not disclose that the height adjusting knob is *rotatably* disposed so that the rod member causing the height adjusting shaft to be lifted up and down is caused by the *rotation* of the height adjusting knob. Instead, Harsh shows a knob (144) that adjusts height by a sliding linear movement of the height adjusting knob (as demonstrated in Figures 7-10).

Similarly, Lagerstrom et al. teach a height adjusting mechanism for a vacuum cleaner that comprises a height adjusting knob (70) having cam curve portion (81, 114)

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that adjusts the height by operating by a sliding linear movement (Column 4 Line 65 to Column 5 Line 4). Lagerstrom et al. additionally teach that it is known to use a height adjusting knob (150) having a cam curve portion (166) that adjusts the height by operating rotatably by rotation (Column 7 Line 65 to Column 8 Line 9). Regarding claim 9, the knob is rotatably coupled to a shaft receiving groove formed on a bottom surface of the brush frame (as shown in Figure 22). Most importantly, Lagerstrom et al. recognize that a knob, cam surface, with a height adjusting shaft will adjust the height in an equivalent manner (Column 2 Line 43 to Column 3 Line 14; Column 8 Lines 41-49).

It would have been obvious for one of ordinary skill in the art to modify the height adjusting knob of Harsh to be rotatably disposed at a seating portion so that rotation of the knob causes the height adjusting shaft to be lifted up and down, as Lagerstrom et al. teach, as both a sliding knob and a rotational knob are recognized as structural equivalents in height adjustment mechanisms for vacuum cleaners.

2. Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al., US 4,446,594 in view of Harsh, US 6,363,573.

Watanabe et al. disclose the claimed invention including a suction brush body (1), a height adjusting knob (10) rotatably disposed at a seating portion formed in the suction brush body (14; Column 3 Lines 19-21), and having a cam curve portion formed at a part of an end of the height adjusting knob (end at 15, see Figure 6), the cam curve portion having a height difference between a starting point and an end point thereof (see Figure 6, X, Y, and Z; at the lowermost portion of the cam curve is when the nozzle is at its lowest height and the uppermost portion of the cam curve is when the nozzle is

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at its highest point; Column 3 Lines 23-27, Column 4 Lines 33-49) and a plurality of recessed planes formed between the starting point and the end point (X, Y, Z; see Figure 6), a horizontal height adjusting shaft (17-1) having a rod member (17-2) attached to the height adjusting shaft which extends upwardly and away from the height adjusting shaft (as 17-2 extends both upwardly and away from 17-1, see Figure 4), *substantially* orthogonal to the height adjusting shaft at its attachment point to the height adjusting shaft (see Figure 3, appears to be about 80-85 degrees which is considered to be substantially orthogonal), to contact the cam curve portion, the rod member causing the height adjusting shaft to be and lifted up and down according to a rotational direction of the height adjusting knob (Column 3 Lines 37-39), and a brush front wheel (18) rotatably coupled to the height adjusting shaft (via 17-3; Column 3 Lines 39-41, Figure 3). Regarding claim 2, Watanabe et al. discloses that the suction brush body comprises a brush frame (2) which has a suction portion at a lower surface thereof (3) and in which the height adjusting shaft (17) is disposed (Figure 8 displays that the shaft 17 is disposed in the brush frame), and a brush cover (unlabeled, upper plate of 1, has reference numeral 1 as shown in Figure 3). Regarding claim 3, the seating portion comprises a seating member disposed at the brush frame (14, 22) and a seating hole formed through the brush cover (unlabeled, shown in Figure 9). Regarding claim 4, the seating member is partially cut away to form a space portion (see Figure 6, the space is the slot is the opening of the C-shaped portion of 14). Regarding claim 5, the height adjusting knob comprises a cylindrical knob body (see 10, 15 in Figure 6), a handle portion formed at an upper surface of the knob body (unlabeled, top portion of 10, best

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shown in Figure 9), a flange portion protruded along an outer circumferential surface of the knob body (unlabeled, best shown in Figure 6), a fixing protrusion (see lowermost portion of 10 as shown in Figure 6 that includes three slots, a fixing protrusion is considered to be one of the protrusions between the slots) seated in a fixing groove formed at an inner surface of the seating member (the fixing groove is considered to be the C-shaped opening in the portion of 14, best shown in Figure 6), and a cam planar portion (lower surface of 15). Regarding claim 6, the fixing protrusion is protruded at a lower surface of the flange portion (as shown in Figure 6), and a surface of the fixing protrusion contacted with the fixing groove is rounded (in that the protrusions between the slots have a rounded periphery). Regarding claim 9, the height adjusting knob (10) is rotatably coupled to a shaft receiving groove formed in a bottom surface of the brush frame (the shaft receiving groove is unlabeled, shown in Figure 8 where 17 is received, it is rotatably coupled via 14, Column 3 Lines 19-21). Watanabe et al. does not disclose a plurality of recessed grooves formed between the starting point and end point of the cam curve portion.

Harsh teaches a height adjustment mechanism for a suction brush body (22) that has a height adjusting knob (144) disposed at a seating portion formed in the suction brush body (28 and/or 146; Column 4 Lines 60-65), having a cam curve portion (92) formed at a part of an end of the height adjusting knob inserted into the suction brush body (80; Figures 9-10), the cam curve portion having a height difference between a starting point and an end point thereof (starting and ending points are 114 and 120, Figures 9-10), and a plurality of recessed grooves formed between the starting point

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and the end point (116, 118; Figures 9-10; Column 4 Lines 15-33), a height adjusting shaft (72) integrally formed with a rod member (62; Figures 9-10) which is contacted with the cam curve portion and lifted up and down according to a direction of the knob (Column 4 Lines 28-33), and a brush front wheel rotatably coupled to the height adjusting shaft (78). Regarding claim 5, the recessed grooves are softly connected to each other (see Figures 6-8). Harsh particularly teaches that the ribbed camming or cam curve portion provides an easily adjustable height adjustment mechanism and "may be formed on any height adjustment mechanism which creates a camming action between to members to raise or lower the height of the vacuum cleaner nozzle" (Column 6 Lines 15-31).

It would have been obvious for one of ordinary skill in the art to substitute the cam curved portion with recessed planes of Watanabe et al. for a cam curved portion having recessed grooves, as Harsh teaches, so that the cam portion will enable the height adjustable mechanism to be easily adjustable by a user.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al., US 4,446,594 and Harsh, US 6,363,573 as applied to claim 9 in view of Jailor et al., US 6,081,963.

Watanabe et al. and Harsh disclose all elements mentioned above, however do not include a shaft receiving groove that has a plurality of latching protrusions.

Regarding claim 10, it is noted that Watanabe et al. does have a shaft receiving groove (in that the shaft 17 is received in a groove in what appears to be a portion of housing that is unlabeled but shown in Figure 8) that is communicated with a front wheel

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receiving hole formed through the brush frame so that the front wheel is not interfered with the brush frame (Figure 8, as wheel 18 appears to share a portion of a housing with the groove that the shaft 17 is received in).

Jailor et al. teach a shaft receiving groove (237; Figure 15) that is communicated with a front wheel receiving hole (236) formed through a brush frame so that a front wheel (30) is not interfered with the brush frame, and has a plurality of latching protrusions (239) to retain the shaft (234) within the groove (Column 7 Lines 21-34).

It would have been obvious for one of ordinary skill in the art to modify the brush frame, shaft receiving groove, and wheel receiving hole of Watanabe et al. and Harsh to have a brush frame having a shaft receiving grooves with a plurality of latching protrusions configuration as Jailor et al. teach, so that the height adjusting shaft is retained within the brush frame and the wheels are free to rotate.

Allowable Subject Matter

4. Claims 7-8 and 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

It is particularly noted that US 5,970,576 to Maurer et al. teach a height adjusting shaft that comprises a shaft body (42) connected at both ends with a brush front wheel (20; Figure 10), a shaft connected at both ends of the shaft body (62), and a reinforcing rib (70, 72, 74, 76, 78, 80) disposed between the shaft body and the other shaft to

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prevent the shaft body from twisting (Column 4 Lines 9-12). Maurer et al. do not teach that a rotary shaft connected at both ends to the shaft body, secured to the shaft receiving groove by a screw to rotate the height adjusting shaft. Also, Maurer et al. most notably does not teach a height adjusting knob that is *rotatably* disposed at a seating portion, although there is a knob with a cam curve portion with a plurality of recessed grooves (28).

Lee, US 6,357,076, disclose the claimed invention including a suction brush body (1, 3), a height adjusting knob (70) rotatably disposed at a seating portion formed in the suction brush body (22; Column 4 Lines 12-15, Column 5 Lines 44-51), and having a cam curve portion formed at a part of an end of the height adjusting knob (one end of 73; see Figure 3), the cam curve portion having a height difference between a starting point and an end point thereof (see Figures 3-4, at the lowermost portion of the cam curve is when the nozzle is at its lowest height and the uppermost portion of the cam curve is when the nozzle is at its highest point; Column 5 Line 63 to Column 6 Line 8, Column 6 Lines 21-28) *and a single spiral recessed groove* formed between the starting point and the end point (75; see Figures 3-4), a height adjusting shaft (41) integrally formed with a rod member (31) which is lifted up and down according to a rotational direction of the height adjusting knob (Column 5 Line 63 to Column 6 Line 8, Column 6 Lines 21-28), and a brush front wheel (9) rotatably coupled to the height adjusting shaft (via 31, 33; Figure 1). Lee additionally includes multiple fixing grooves (83) are formed in a length direction of the seating member (as shown in Figure 2) to be apart from each other at regular intervals (Column 5 Lines 36-39), and each fixing groove has a shape

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corresponding to the fixing protrusion (as shown in Figure 2; Column 5 Lines 39-42).

Lee however *does not include* a height adjusting shaft that *is contacted with* the cam curve portion, rather a height adjusting shaft is in contact with a driving part (61) of a slider (or cam receiver 60) that is directly in communication with the cam curve portion (see Figure 2). Lee operates in another manner as the height adjusting shaft moves in response to the driving part that is driven in response to the knob and the cam curve member.

Response to Amendment

6. In the response of 07 November 2006, the Applicant made Amendments to the Specification and indicated that the location of the changes is to be made on page 13. However, this is incorrect. See Attachment A to this Office Action. The paragraph to be replaced is located on Page 11 Line 15 to Page 12 Line 3, so the Applicant's Amendments to the Specification is incorrect. It appears that the Applicant's version of the Specification has different page and line numbers and that this error is inadvertent. Applicant needs to correct the Amendments to the Specification.

Response to Arguments

7. Applicant's arguments filed 07 November 2006 have been fully considered but they are not persuasive.

Regarding Watanbe in view of Harsh, the Examiner is confused in the Applicant's remarks. In the previous Office Action, the Examiner did identify the limitation of claim 1 that was not disclosed in Watanbe. That is, Watanabe et al. does not disclose a plurality of recessed grooves formed between the starting point and end point of the

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cam curve portion. Also, Watanbe does in fact have a rod element attached to the horizontal height adjusting shaft such that the rod member is *substantially* orthogonal (as stated above, as "rod member" 17-2 extends both upwardly and away from "horizontal height adjusting shaft" 17-1, see Figure 4 *substantially* orthogonal to the height adjusting shaft at its attachment point to the height adjusting shaft as shown in Figure 3 in that it appears to be about 80-85 degrees which is considered to be substantially orthogonal.) Regarding the combination with Harsh, Harsh teaches a height adjustment mechanism for a suction brush body (22) that has a height adjusting knob (144) having a cam curve portion (92) formed at a part of an end of the height adjusting knob inserted into the suction brush body (80; Figures 9-10), the cam curve portion having a height difference between a starting point and an end point thereof (starting and ending points are 114 and 120, Figures 9-10), and a plurality of recessed grooves formed between the starting point and the end point (116, 118; Figures 9-10; Column 4 Lines 15-33). Again, it would have been obvious for one of ordinary skill in the art to substitute the cam curved portion with recessed planes of Watanabe et al. for a cam curved portion having recessed grooves, as Harsh teaches, so that the cam portion will enable the height adjustable mechanism to be easily adjustable by a user.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Guidotti whose telephone number is (571) 272-1272. The examiner can normally be reached on Monday-Thursday, 7:30am - 5pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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James M. Till
Patent Examiner